UNITED
NATIONS

A

General Assembly

Distr.
GENERAL

A/AC.237/44
7 January 1994

Original: ENGLISH

INTERGOVERNMENTAL NEGOTIATING COMMITTEE
FOR A FRAMEWORK CONVENTION ON CLIMATE CHANGE
Ninth session
Geneva, 7-18 February 1994
Item 2 (a) of the provisional agenda

MATTERS RELATING TO COMMITMENTS

METHODOLOGICAL ISSUES

Note by the interim secretariat

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I. INTRODUCTION

A. Committee mandate

1. At its eighth session the Committee held a lengthy and productive discussion relating to various methodological issues stemming from the provisions of the Convention. Numerous conclusions were reached, as reported in document A/AC.237/41, paras. 35-45, and the following are particularly salient for the purposes of this note and the discussions at the ninth session:

(a) There was general consensus that the draft methodologies for inventories developed by the Intergovernmental Panel on Climate Change (IPCC), scheduled to be released in December 1993 for international review, would be reviewed by the Committee at its ninth session and recommended for use by Annex I Parties in the preparation of their national communications. The IPCC was also invited to inform the Committee at its ninth session of its plans to move beyond the first generation of inventory methodologies, indicating priorities, time-frame and resource requirements;

(b) The Committee asked its Chairman to consult with the Chairman of the IPCC on the establishment of necessary arrangements to ensure harmonization of the work of the two bodies, including matters relating to a small joint working party;

(c) Also with respect to inventories, the interim secretariat was requested to prepare a paper with suggestions on the scope, development, organization and management of a system for the central collection, management and reporting of data;

(d) Pursuant to discussions on methodologies for calculating the contribution of different gases to climate change, the interim secretariat was requested to prepare a compendium of studies on global warming potentials (GWPs);

(e) On the question of the treatment of emissions from bunker fuels in inventories, the Committee asked the interim secretariat to provide it with policy options for allocation and control;

(f) The Committee highlighted the importance of methodologies to assess the effects, and the effectiveness, of measures undertaken pursuant to the provisions of the Convention. It requested the interim secretariat to prepare, for consideration at the ninth session, a paper on such methodologies.

B. Scope of the note and possible action by the Committee

2. The interim secretariat proposes to address the points raised in paragraph 1 above, in the following ways:

(a) Section II of the present note offers a short status report on inventory methodologies. The Chairman of the IPCC will provide a more detailed report to the ninth session on the work of the IPCC, including on inventory methodologies and plans for future work on inventories. The IPCC Draft Guidelines for National Greenhouse Gas Inventories will be considered by the Committee (see paragraph 6 below for details of document distribution and availability). In accordance with the understanding reached at the eighth session, the Committee

may wish to recommend that Annex I Parties use the Draft Guidelines in the preparation of their first communications. The Committee could return to the consideration of inventory methodologies at the eleventh session at which time final recommendations for the first session of the Conference of the Parties (COP 1) could be agreed;

(b) Further to a joint meeting of members of the Bureaux of the Committee and the IPCC held on 19 November 1993 to discuss matters of common interest, the Chairmen of the Committee and the IPCC will report orally to the Committee on the results of that meeting and on the ensuing arrangements;

(c) The interim secretariat recommends that the question of a system for the central collection, management and reporting of inventory data should be taken up at the tenth session in the context of discussions on the establishment of the permanent secretariat;

(d) Global warming potentials are discussed in document A/AC.237/44/Add.1;

(e) The question of the allocation and control of emissions from bunker fuels is considered in document A/AC.237/44/Add.2;

(f) Matters relating to methodologies for developing projections of emissions and removals and for assessing the effects of measures constitute the focus of the present note. Section III reviews the relevant Convention provisions, reports on work in progress, offers some observations by the interim secretariat and proposes conclusions for consideration by the Committee.

3. Further to subparagraph 2 (f) above, the interim secretariat, in preparing this note, has based its work on several assumptions. These assumptions are, in turn, based on the text of the Convention which, in different articles, refers to "projected ... emissions ... and removals", "a specific estimate of the effects of policies and measures" and the "effectiveness of measures" (see section III A below on Convention provisions). The use of these different terms can lead to questions of interpretation which the interim secretariat has dealt with in the following manner. It is assumed that methodologies will be required for the **projection** of emissions and removals and for **estimating the effects of measures**. Data analysed in accordance with these methodologies will lead to conclusions on projected emissions and the effects of measures. On the basis of these conclusions, Parties will be able to evaluate, or make judgements on, the **effectiveness** of the measures implemented pursuant to the Convention with particular reference to the benchmarks included in Article 4.2(a) and (b).

4. In addition to the information contained in this note, the Committee is expected to benefit from a submission from Annex I countries (see A/AC.237/45/Add.1) which, as reported at the eighth session, have launched a project that includes work on methodologies for the projection of greenhouse gas emissions (see paragraphs 16-19 below). Document A/AC.237/45 on guidelines for the preparation of first communications, document A/AC.237/46 on the roles of the subsidiary bodies and document A/AC.237/Misc.32 containing comments from member States on methodological issues also contain relevant information.

5. On the basis of the information before it, and the resulting discussion, the Committee may wish to consider conclusions relating to methodologies for projecting emissions and assessing the effects of measures. It will be particularly important to provide some guidance to Annex I Parties

on the methodological approaches they should use in preparing their first communications. It would also be useful to identify any further work that should be undertaken, taking into account the efforts of the IPCC and the Annex I countries, and when the Committee would wish to consider the issue again with a view to providing recommendations to COP 1.

II. METHODOLOGIES FOR INVENTORIES: IPCC DRAFT GUIDELINES

6. The IPCC Draft Guidelines for National Greenhouse Gas Inventories include three volumes:

- Vol. I Greenhouse Gas Inventory Reporting Instructions, which provide directions for collating, documenting and transmitting completed national inventory data in a consistent manner.

- Vol. II Greenhouse Gas Inventory Workbook, which contains step-by-step instructions for planning and calculating emissions for the major source and sink categories of the principal greenhouse gases (and their precursors).

- Vol. III Greenhouse Gas Inventory Reference Manual, which contains detailed background information relevant both to the default methodology explained in the workbook and to a wider range of gases and source/sink categories.

The Draft Guidelines will be subject to international review during 1994 after which they will be considered at the IPCC plenary meeting in November 1994. Volumes I and II of the above-mentioned guidelines are expected to be circulated to IPCC national focal points in January 1994 and Volume III shortly thereafter. Delegations to the ninth session of the Committee should seek to obtain information through their national channels. In addition, one copy of Volume I: Greenhouse Gas Inventory Reporting Instructions will be available to each delegation at the ninth session. (This will be available in the six official languages of the United Nations.)

7. The core of the Draft Guidelines is the establishment and use of a standard table format using common source/sink categories and common fuel categories. The Draft Guidelines include documentation standards that should promote transparency and comparability. The guidelines offer a default methodology for the preparation of inventories for certain gases and this would be available to any country wishing to use it. Countries that already have an established and comparable methodology could continue to use that methodology provided that they include sufficient documentation to substantiate the data presented. This will allow for comparison of methodologically diverse national estimates.

8. The process for developing the Draft Guidelines is designed to result in international agreement. The IPCC is making extensive use of workshops and expert groups, involving representatives from developing and developed countries, to ensure this result.

9. The Chairman of the IPCC will provide a report to the ninth session on the inventory methodologies. This may include a written response to the questions posed at the eighth session on proposals for future work on inventories.

III. METHODOLOGIES FOR PROJECTIONS AND ASSESSMENT OF EFFECTS

A. Convention provisions

10. Article 4.2(b) requires each Annex I Party to communicate detailed information on its "resulting projected anthropogenic emissions by sources and removals by sinks" for the period referred to in Article 4.2(a) (that is, to the end of the present decade). In addition, Article 12.2(b) requires that communications from Annex I Parties include "a specific estimate of the effects that the policies and measures [adopted to implement the commitments under Article 4.2(a) and (b)] will have on anthropogenic emissions ... and removals" for the period referred to in Article 4.2(a) (that is, to the end of the present decade).

11. The Convention provides the following guidance on how this information is to be developed. Article 7.2(d) requires the COP to promote and guide the development and periodic refinement of comparable methodologies, to be agreed by the COP, for evaluating the effectiveness of measures to limit emissions and enhance removals. Article 4.2(c) provides additional relevant guidance in directing the COP, at its first session, to consider and agree on methodologies for the calculation of emissions and removals.

B. Work in progress

1. Intergovernmental Panel on Climate Change

12. The IPCC will issue its second assessment report in late 1995. Work in developing the report, as well as the conclusions it contains, will be highly relevant to the development of methodologies to assess the effects of measures and to project emissions.

13. IPCC Working Group II, which deals with climate change impacts and response options, will, according to its terms of reference, address future trends in the net emissions of all greenhouse gases. The Working Group will prepare methodologies for use on national, regional and global scales, including those for assessing the options available to mitigate climate change. The latter will comprise a component assessing the results of such options. Their work on the assessment of mitigation options will include (for each of the selected six sectors) the potential impacts of such measures. The report by Working Group II will also provide a summary description of the methodologies developed by each subgroup for use by countries. Detailed methodologies will be included in an annex.

14. IPCC Working Group III, which deals with cross-cutting economic and other social and equity issues, will, according to its terms of reference, undertake technical assessments of the socio-economics of mitigating climate change, over both the short and long term and at the regional and global levels, considering top-down and bottom-up economic modelling and methods for the generic assessment of response instruments. The potential effects of various policy instruments and the effectiveness of different response options will be assessed. Modelling methods will be described and evaluated. Working Group III is also to consider and develop as necessary a range of internally consistent scenarios for future emissions based on reasonable economic, demographic and technological projections.

15. While some results of this work will be available for the special report to be issued by the IPCC in late 1994, the bulk of the conclusions will be included in the second assessment report, 1995. The amount of information available to the first session of the COP will thus be limited. The Chairman of the IPCC will provide a progress report to the ninth session.

2. Annex I countries

16. In anticipation of the requirement to communicate, in 1994, information on their implementation of the Convention, countries and the organization listed in Annex I launched a project to help them prepare their communications and to develop recommendations for consideration by the Committee. Government experts from Annex I countries oversee and contribute to the project, while the secretariat of the Organisation for Economic Co-operation and Development (OECD), in collaboration with the International Energy Agency (IEA), facilitates the exchange of information and the development of recommendations.

17. One of the long-term objectives of the project is to outline methodological options for the estimation of the projected effects of measures on greenhouse gas emissions. In this context, the project aims to elaborate criteria for complete, comparable and transparent communications. Recommendations will also be developed for:

- Time horizon of projections and estimates of effects
- Content and presentation of projections and estimates of effects
- Treatment of uncertainty
- Presentation of methods and assumptions
- Use of models and approaches
- Special issues relating to the needs of countries with economies in transition

18. The conclusions of the project will be based on an analysis of initial communications, or plans to develop initial communications, by six Annex I countries (Canada, Germany, Hungary, Poland, Switzerland and the United States), while taking account of others submitted to the interim secretariat, and on information relating to the practical experience of these countries in preparing the communications. Project review teams, including national experts from Annex I countries and members of the OECD/IEA secretariat, visited each of the six countries in October and November of 1993.

19. Work on the project began in July 1993. A progress report is expected to be made to the ninth session of the Committee (A/AC.237/45/Add.1) and the final report will be available prior to the tenth session.

C. Observations by the interim secretariat

20. Economic models have been used widely since the 1970s for projecting energy use and estimating the effects of policies and measures on energy use. In recent years, many energy sector models have been adapted to calculate carbon dioxide (CO_2) emissions. These models do not generally include other greenhouse gas emissions, which have to be estimated by other means. It is generally recognized in the energy analysis community that actual energy use seldom matches projections. Nevertheless "scenarios" or "outlooks" are frequently used as a basis for considering the effects of policy and investment decisions. Future energy use, and hence CO_2

emissions, are uncertain because of uncertainty in economic growth, industrial production, commodity prices and technical change, as well as uncertain consumer responses to changes in income, prices and technology and many other factors. The assumptions employed for these factors very much influence the results. While existing models can be used to estimate the effects of regulations and taxes on emissions within an order of magnitude, models are not generally available to estimate the effects of information or education programmes.

21. The national "reports", "strategies" and "plans" transmitted to the interim secretariat to date have taken a variety of approaches. Some have attempted to estimate the effects of some or all measures while others have not. Some have provided emissions projections. This further points to the differences in approaches and capacities between countries.

22. In view of the current state of developments relating to emissions projections and estimation of effects, it is unlikely that COP 1 will be in a position to prescribe the use of comparable models or methodologies. In order to promote comparability, however, some guidance on this matter will be required by Annex I Parties for the preparation of their national communications in 1994. Proposed guidelines in this respect are broached in document A/AC.237/45. The following paragraphs are consistent with the proposals in that document. It is also expected that the report to the ninth session from Annex I countries on their initiative relating to national communications (see A/AC.237/45/Add.1) will include information on projections and the estimation of effects that will be useful to the Committee's deliberations on this matter.

23. Annex I Parties should include in their national communications a projection of future greenhouse gas emissions reflecting the policies and measures included in the communication. They should also provide a specific estimate of the effect on emissions and removals of the total package of policies and measures. The Committee may wish to consider the extent to which more detailed information should be provided (for example, whether estimates should be provided on a sectoral basis or even for individual policies and measures). In developing the required projections and estimates of effects, the Parties should be free to make use of the models, methods and approaches with which they are most familiar and which, in their view, provide the most useful results. For such an approach of building on existing capacities to function effectively, and thereby promote comparability, elements of a common framework will be important, notably common reference years and transparency.

24. Common reference years should be used for emissions projections incorporating the policies and measures included in the national communication. An estimate of the effects of the policies and measures in that reference year should also be provided. The years 1990 and 2000 would appear to be the most appropriate reference years. Data for years prior to 2000 and for years such as 2005 and 2010 could also be provided, if so desired.

25. Transparency will also be of fundamental importance. Sufficient documentation should be provided to allow others to understand calculations and major assumptions used in developing the projections and estimates of effects. Models used should be named and, if appropriate, described. Assumptions should be clearly stated. It would also be important to provide a qualitative assessment of the uncertainty associated with the projection and estimate of effects.

D. Conclusions

26. If the Committee agrees, its conclusions on the issues presented above, and any points raised in the discussion, could be reflected in the provisional guidelines for the preparation of communications by Annex I Parties. The Committee could also identify any further work required, taking account of the ongoing efforts of the IPCC and the initiative of the Annex I countries. The Committee may wish to consider whether the issue of methodologies for projecting emissions and estimating the effects of measures could then be set aside until the eleventh session when recommendations to COP 1 could be adopted. Any significant new information that became available in the meantime would be transmitted to the Committee by the interim secretariat.